City of Lynchburg

Information Technology Strategic Plan

FY2019 – FY2021

I. BACKGROUND and OVERVIEW

Every three years, the City of Lynchburg's Information Technology Department (IT) develops a new information technology plan for the City. This document is intended to describe the City's envisioned initiatives to utilize information technologies to improve City operations in the time period FY2019 – FY2021. To help guide the investment and use of very limited resources, the strategies and actions described in this document will help ensure the City is focused on its highest information technology priorities.

As in prior plans, the principles for guiding investment in information technologies are included in this plan. The technology project governance process is also described. These principles and the governance process provide the framework for ensuring that all significant investments in information technology are selected and managed for the benefit of the enterprise and that only those initiatives that provide the greatest positive return on investment will be pursued.

The planning process began by gathering data from the leadership of City departments. Using the collective vision of department leaders, strategies and actions for information technology investment have been identified. These strategies and actions are grouped into seven focus areas, reflecting the highest technology priorities.

These strategies and actions are just a beginning point, providing a roadmap for the next three years. Each action must still be fully evaluated for return on investment and reviewed for approval and funding in the appropriate budget process before being acted upon. The time frames specified for the strategies and actions in this plan reflect the best estimates possible, but it is fully expected that time frames will be modified as the City responds to changing priorities and economic conditions.

Technology planning is extremely dynamic, given the rapid pace of change in technologies, uncertain fiscal resources, and other external influences. As has been the past practice, this plan will be revised annually to reflect changing priorities and circumstances.

II.   MISSION AND GUIDING PRINCIPLES FOR INFORMATION TECHNOLOGY

The Information Technology Department (IT) is responsible for providing enterprise technology services to City departments. IT operates in a consultative and collaborative manner, partnering with its customers to understand their business needs and aid in aligning technology solutions to meet defined business needs and goals. The mission of the department is as follows:

Mission Statement: *To partner in our customers' success through the provision of high quality information technology solutions and services.*

Shared principles across all City departments are a necessity for the most effective use of the City's technology resources. Nine fundamental principles are defined to guide the City's information technology initiatives and investments. These principles closely follow industry best practices and trends.

1. **Every technology initiative will have a defined business need and department sponsor.**

    - All technology initiatives will be driven by business requirements and prioritized according to the business need and return on investment.

    - Business justifications will determine the technology priorities for the Information Technology Department (IT).

2. **Technology will be shared across departments and applied to common work processes wherever possible.**

    - Technology initiatives will have an enterprise-wide focus when being evaluated, looking for shared applications to reduce redundancy and to eliminate the inefficient use of resources.

3. **Every technology initiative will be evaluated for its full requirements, costs, and return on investment, covering the full life cycle of the initiative, before a solution is developed or acquired and implemented.**

    - The full cost of an initiative, including the requirements for implementation, operations, maintenance, and support will be included when being evaluated.

    - Only those initiatives that have a positive return on investment will be pursued. In other words, just because something <u>can</u> be done does not mean it <u>should</u> be done.

    - All technology initiatives meeting the criteria of the IT Project Governance policy will follow the City's IT governance process for project evaluation and approval.

4. **Common data will be used across departments and shared to the fullest extent possible.**

    - Data will be viewed as an enterprise resource.

    - Data will be captured once and shared wherever needed to reduce costs, redundancy, and duplication of effort.

II.   **MISSION AND GUIDING PRINCIPLES FOR INFORMATION TECHNOLOGY (continued)**

5. **Custom application development will be minimized. "Buy" will be the preference versus "build."**

   - Commercial off-the-shelf software and cloud-based technology services, with minimal customization, will be acquired and implemented to speed the deployment of new business applications and to minimize application development resource requirements.

   - Business processes will be examined and improvements identified prior to acquiring new applications to obtain the desired functionality with minimal customization.

6. **Proven advanced technologies will be pursued.**

   - Technologies that are implemented will reflect emerging trends that meet business requirements, but will also have a proven track record or reasonable assurance of high quality and reliable support.

7. **Proprietary technology solutions will be minimized. Open architectures and standards will be followed.**

   - Technology solutions will adhere to open standards to facilitate data sharing and system integration, to minimize support costs, and to maintain maximum vendor independence.

8. **Technology initiatives will adhere to city-wide technology standards.**

   - All information technology development and operations will conform to a defined set of standards.

   - Standards will be maintained to minimize costs and to ensure systems interoperability.

9. **Technology projects will be managed using a standard project management methodology.**

   - All projects will have a predefined scope, with milestones and deliverables defined.

   - When vendors or contractors are utilized, contract management will be assigned and managed to ensure deliverables are produced within the agreed scope and schedule of the project.

   - All new technology initiatives and investments will be evaluated and managed in accordance with these principles.

III.   INFORMATION TECHNOLOGY GOVERNANCE

Consistent with the set of principles above, all work performed by IT will be governed by approval and prioritization processes that involve representatives from City departments. This section describes the various processes to be followed for technology initiatives and work requests to be reviewed and approved. For all Strategies and Actions described in this plan, each must follow the appropriate approval and budgeting processes in order for the action to be prioritized, scheduled, and funded.

Large Projects

The City's Leadership Team, comprised of the City Manager, the Deputy City Manager, and their direct reports, serves as the evaluation and approval body for all large information technology projects.   All telecommunications and information technology projects that meet the specified criteria, regardless of funding source, must be reviewed and approved by the Leadership Team. The *project governance policy* describes this process more fully. In brief, all telecommunications and information technology projects meeting at least one of the following criteria are subject to this policy and governance process:

 • The project's development schedule, consisting of the analysis, design, and development or acquisition (including testing) of the proposed solution, is estimated to exceed 6 months;

 • The total project cost is estimated to exceed $50,000;

 • The project will consist of the development, acquisition or installation of computing or telecommunications technologies not currently supported by IT or the requesting user department;

 • The proposed solution will be or has the potential to be used by more than one City department; OR

 • The proposed solution is estimated to require additional staff to be hired to develop, acquire, or support the system.

All proposed large projects will be evaluated by the Leadership Team, using the evaluation criteria described in Project Governance policy document. The Leadership Team will then issue its recommendations to be used in the budgeting processes for the proposed funding sources (General Fund, Enterprise Funds, Capital Improvement Program, Technology Fund, grants, etc.). No projects meeting the above criteria should be funded without going through this governance process.

Small Projects and Other Work Requests

Smaller work efforts – those that do not rise to the level of the criteria specified above for large projects – will also be evaluated and prioritized, but through processes generally associated with the user groups of the City's enterprise applications. These applications are:

 • New World Systems: for financial management, human resources, and utility billing
 • Work Management System (Lucity): for work order processing and asset management
 • TrakIT: for community planning, permitting, inspections, and code enforcement
 • Geographic Information System (GIS).

The appropriate IT Division Manager will conduct regular meetings with the appropriate stakeholders from user departments for each of these application areas to evaluate, prioritize, and schedule work efforts associated with the given enterprise application. Any work requests that do not apply to an enterprise application area are evaluated and prioritized by the appropriate IT Division Manager in collaboration with the requesting department and scheduled as budgeted resources allow. All work requests that cannot be accomplished with existing, budgeted resources must be submitted by the requesting department to the appropriate budget approval process to obtain the necessary funding.

Technology Standards

Information technology standards for hardware, software, and other technologies and services are maintained by IT. Stakeholders and technical support personnel from user departments review and recommend standards for the City. These *standards* are published on the City's intranet site. In the event that consensus cannot be reached by this standards committee on a particular standard, the City's Leadership Team serves as the decision making body to resolve the issue, as well as the ultimate authority on technology standards.

IV.   CITY COUNCIL STRATEGIC PRIORITIES

To help guide the development of the City's Information Technology Plan, the budgetary Guiding Principles defined by City Council and the City Manager are utilized to provide guidance for investment in the City's technology infrastructure. These Guiding Principles were articulated in City Council's budget planning session in February, 2018, as follows:

 • Balance the budget with no new revenue requirements
 • Preserve funding for public safety
 • Use City Council focus areas (Poverty Reduction, Economic Development, Workforce, Infrastructure) as cornerstones for budget development
 • Preserve quality of life programs
 • Focus on outcomes
 • Identify strategic initiatives with long-term outcomes
 • Utilize technology to reduce expenditures wherever possible.

(See City Manager's budget message, page 9 of the FY2019 Proposed Budget: http://www.lynchburgva.gov/fy-2019-budget-documents-proposed).

The Guiding Principles form the foundation for the strategies and actions described in this Technology Plan.

V.   FOCUS AREAS OF THE PLAN

Relying upon the above Guiding Principles, and from discussions with City departments and the Leadership Team, the following Focus Areas, Strategies, and Actions define the Information Technology Strategic Plan for the City of Lynchburg, covering the time frame of FY2019 – FY2021. It is assumed that all Actions proposed in this plan will follow the City's policy for information technology governance before being funded and implemented. Consistent with the Principles described in Section II of this document, all Actions will be fully analyzed for their total cost and their return on investment, and only those Actions that provide the greatest positive return will be pursued, subject to the availability of the necessary fiscal resources.

This Plan is divided into seven Focus Areas:

Focus Area 1	Technology Infrastructure
Focus Area 2	Security
Focus Area 3	Enterprise and Business Applications
Focus Area 4	End-User Environment and Mobile Devices
Focus Area 5	Public Broadband
Focus Area 6	IT Service Management
Focus Area 7	Workforce Development

The Strategies and Actions that formulate the Action Plan of each Focus Area are described in the remainder of this plan.

Focus Area 1:   Technology Infrastructure

Strategy 1: Enhance the Wide Area Network (WAN) to meet the future needs of the City.

Action	Time Frame
1. Isolate the City Schools network from the City's network to enhance security of the City's network.	Complete
2. Provide network engineering support for the design of the new Police Dept headquarters.	FY21
3. Provide network engineering support for the design of the Main Library renovation.	deferred
4. Provide network engineering support for the WasteWater Treatment Plant expansion.	Complete
5. Renew strategic relationship with Lumos Networks to maintain City's Irrevocable Right to Use fiberoptic network.	FY21

Strategy 2: Enhance secured and public wireless network services (WiFi) to meet the future needs of the City.

Action	Time Frame
1. Acquire utilization measurement tools to improve wireless network deployment effectiveness.	Complete
2. Determine City's priorities for any expanded WiFi service at public locations.	Complete
3. Deploy 5G enabled devices in conjunction with carriers' rollout of 5G service.	As available

Strategy 3: Expand use of cloud-based storage and processing where justified by risk, cost, availability, and performance.

Action	Time Frame
1. Identify applications with low business risk to potentially host in the cloud.	FY21
2. Identify cloud providers that meet standards and tolerances for availability, risk, cost, and performance.	Complete
3. Establish production cloud processing and storage environment and migrate selected applications.	FY21

Action	Time Frame
4. Implement cloud-based data storage where justified to supplement disaster recovery by storing critical data outside of local geographic area.	Complete
5. Move selected low-risk and public-facing applications to the cloud.	FY21

Strategy 4: Enhance Voice over IP telephone system and other telecommunications services for sustained operations.

Action	Time Frame
1. Replace and upgrade VoIP handsets across the City that are at end-of-life.	FY20-21
2. Perform analysis for a business case to replace desk phones with City-issued cell phones integrated to the VoIP system.	Complete

Focus Area 2:   Security

Strategy 1: Establish an information security framework for securing the City's information and information systems.

Action	Time Frame
1. Identify security improvement opportunities aligned with NIST SP 800-53, SANS Top 20, and any public safety frameworks currently in use.	Complete
2. Identify and benchmark industry best practices for information security.	Complete
3. Develop an enterprise information security framework and associated action plan for implementation.	FY20-21

Strategy 2: Improve City-wide cooperation and management of cybersecurity.

Action	Time Frame
1. Establish a security management position to oversee cybersecurity across all City departments.	Complete
2. Develop an inter-departmental process for timely notification of security alerts and application of security patches.	Complete
3. Develop a City-wide information security incident response plan and procedure for cybersecurity incidents.	Complete

Action	Time Frame
4. Evaluate the use of application whitelisting and dual-factor authentication technologies. Develop implementation plan, if feasible.	Complete

Strategy 3: Improve security of business applications.

Action	Time Frame
1. Modify procurement policies and procedures to evaluate all new business application purchases for security adequacy, including those cloud-based.	FY20-21
2. Assess existing business applications for security adequacy.	FY20-21
3. Identify Personally Identifiable information (PII) stored in City systems and develop a plan for encrypting wherever possible.	FY20-21

Strategy 4: Standardize security configuration and patch management policies, procedures, and capabilities regarding Internet-enabled devices and mobile devices.

Action	Time Frame
1. Create a policy or guideline to require a security risk assessment whenever procuring or purchasing any Internet-enabled device, ensuring security capabilities meet requirements.	FY20-21
2. Implement an enterprise process to ensure security patches are applied to Internet-enabled and mobile devices in a timely manner.	Complete
3. Create a risk assessment procedure to annually evaluate vendor support for security patches of Internet-enabled and mobile devices, and alter equipment replacement cycles accordingly.	FY21

Focus Area 3:   Enterprise and Business Applications

Strategy 1: Reengineer legacy in-house developed systems to enhance operation and reduce ongoing maintenance and support effort.

Action	Time Frame
1. Upgrade Citylink to be a more streamlined payment portal.	Complete
2. Reengineer the Citynotes intranet site to orient toward internal service needs.	Complete
3. Reengineer the Billing And Receivables System (BARS) to reduce system maintenance complexity by modularizing Business License and Miscellaneous Accounts Receivable.	Complete

Strategy 2: Implement application releases on enterprise and major departmental applications to maintain current levels of vendor support.

Action	Time Frame
1. Upgrade the personal property tax system (PCI/RBS) to the current vendor release.	FY21
2. Upgrade the New World Systems application suite to the **2018** release. (Financial, Human Resources, and Utility Management)	Complete
3. Upgrade the Lucity Work and Asset Management System to the current vendor release.	Complete
4. Update the Community Development Department's system for permitting, inspections, and code enforcement (TrakIT) • Phase I – TrakIT 9 (current vendor release) • Phase II - Add online permit and fee payment functionality	Phase I – Complete Phase II – Complete
5. Upgrade the City Assessor Office's Computer Aided Mass Appraisal (CAMA) real estate assessment system (Proval) to the current vendor release.	Complete
6. Replace Fleet Management's FASTER system with a system to be acquired.	FY20-21
7. Implement the browser-based version of the City Law system.	Complete
8. Upgrade the service management system (Cherwell) to the latest vendor release (base product).	FY20-21
9. Upgrade the document management system (Laserfiche) to the current vendor release	Complete
10. Upgrade legacy application servers to SSL.	Complete

Strategy 3: Upgrade business systems to reflect business process improvements.

Action	Time Frame
1. Implement the water meter reading system (Badger) and interfaces to the Utility Management system to support cellular wireless meter reading.	Complete

Action	Time Frame
2. Assist the Public Works in the implementation of an Automated Vehicle Locator (AVL) system. • Phase I – vehicle tracking (internal view) • Phase II – vehicle tracking (external view)	Phase I – Complete Phase II – TBD
3. Develop and implement a plan to fully deploy ArcGIS Pro.	FY20-21
4. Configure Lucity and GIS to allow editing of GIS features directly from Lucity Mobile and Lucity Web map.	Complete
5. Develop the ability for Water Resources to do mobile markups of GIS maps (i.e., "redlining").	Complete
6. Enhance the City-Wide Project Tracking (CWPT) system to provide a public-facing portal for City construction project information.	TBD
7. Develop a data management plan for GIS datasets, including those maintained by departments outside of IT.	FY20-21
8. Pilot the use of GIS Open Data Hubs and associated dashboards and data content areas.	Complete
9. Assist Financial Services in developing a business case for implementing alternative bill payment locations in the city.	Cancelled but kiosk is planned for City Hall
10. Assist Financial Services and Water Resources in developing a business case for replacing the Utility Billing System.	Completed (performance issues)
11. Assist Public Works in defining any systems changes needed in conjunction with the refuse collection reengineering effort (Solid Waste Task Force).	FY20-21
12. Develop a unified Debt Setoff System to include personal property tax (Revenue Billing System) and miscellaneous accounts receivable (Billing And Receivables System).	FY20-21
13. Assist the Police Department in providing GIS tools using Police operational data for mapping and automating workflows.	Complete
14. Reengineer the GIS application architecture for applications such as My City Services, Mapviewer, Parcelviewer, and Map Gallery.	FY20 – FY21
15. Assist with integration of Crisis Track and GIS to provide real time updates for emergency initial damage assessments and long term recovery operations.	Complete

Action	Time Frame
16. WebGIS:	FY20-21
A. Research and evaluate GIS solutions from the GIS vendor (ESRI) for the GIS portal, hosted enterprise solution, and web-based online service. Develop project plan for infrastructure and portal implementation.	
B. Implement recommended infrastructure and portal upgrades.	FY21
17. Support implementation of HR Performance Mgt. System.	Complete
18. Develop DMV stops in BARS.	Cancelled
19. Potentially replace current Parking Management System when current contract expires in 2020.	FY21

Strategy 4: Provide systems support for the implementation of Next Generation 911 (NG-911).

Action	Time Frame
1. Identify data validation changes required in GIS to comply with the selected NG-911 vendor's requirements.	FY20-21
2. Implement changes to GIS scripts to provide ongoing data updates to support NG-911.	FY20 – FY21

Focus Area 4:   End-User Environment and Mobile Devices

Strategy 1: Leverage the investment in Microsoft Office 365 for the standard desktop software environment.

Action	Time Frame
1. Expand the deployment of Groups, OneDrive, Sharepoint as the standard information sharing platform.	FY20 and continuing
2. Evaluate Office 2019 and alternatives against Office 365 as a replacement to Office 2010.	Complete
3. Evaluate Skype For Business as the City's standard conferencing application.	Complete

Strategy 2: Improve management of the mobile environment and other network-attached devices.

Action	Time Frame
1. Partner with the Water Resources Department to improve security and availability of their network-attached devices and components.	Complete

2. Evaluate FirstNet offerings (network and devices) to improve service or reduce costs for mobile data communications in public safety and secondary departments; implement if justified.	Complete

Focus Area 5:   Public Broadband

Strategy 1: Deploy broadband-enabling infrastructure in conjunction with major public infrastructure projects.

Action	Time Frame
1. Build a database of existing installations of City-owned conduit available for use by broadband providers.	Complete
2. Implement a process to assess installing WiFi (secure or public) and/or fiberoptic connections with any major City building project or renovation.	Complete
3. Install conduit in conjunction with the Downtown Renewal project.	FY20 - 21

Focus Area 6:   IT Service Management

Strategy 1: Further the implementation of the ITIL framework and Cherwell modules.

Action	Time Frame
1. Implement the Cherwell modules associated with the Problem Management and Project Tracking processes.	FY20-21
2. Implement the Cherwell modules associated with the Knowledge Management and Service Portfolio processes.	FY21
3. Implement the ITIL processes for Continuous Service Improvement and Capacity and Performance Management.	FY21

Focus Area 7:   Workforce Development

Strategy 1: Increase systems competencies in City departments.

Action	Time Frame
1. Supplement GIS Academy training offerings with complimentary training materials, including department-specific training as needed by individual departments.	Complete
2. Partner with Public Works to train individuals on Lucity data administration and maintenance processes.	Complete
3. Partner with Parks and Recreation to train support staff on City IT technology support tools and systems.	Complete
4. Increase training in City departments on the business systems they utilize.	FY20 - 21

Strategy 2: Enhance technology training delivery to City employees.

Action	Time Frame
1. Modify the IT Self-Service portal on the intranet to provide additional technology self-help training resources.	Complete
2. Partner with Human Resources to increase technology training offerings to all employees through the NeoGov Train system.	Complete

Strategy 3: Develop and retain key IT talent to support operational needs and anticipated retirements.

Action	Time Frame
1. Provide budgetary resources for training of all staff to maintain technology competency and currency.	FY20 - 21
2. Develop succession plans, including cross-functional assignments, for anticipated senior IT management retirements.	Complete